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Notes on some Florida Plants.

By Geo. V. Nash.

The section of Florida visited by me, and where I spent some five or six months collecting the flora, had never before been systematically explored botanically. One or two parties had collected for a few weeks in the winter season, but no one had spent any great length of time, and so it was practically a virgin field for the botanist. Its flora is most interesting, both in new and rare forms. The northern and tropical vegetation seem to overlap here. *Ximenia Americana*, a common West Indian shrub, and *Mitchella repens*, our common partridge berry, which has a far northern range, were equally common. This is a fair example of the extreme diversity of the forms.

Eustis, a beautiful little town in the high pine land country, was the centre of my operations. This is situated on a lake of the same name, some six miles long and three miles wide, connected with Lakes Griffin and Harris by the Ocklawaha River. It is about 25 miles from the Gulf, an equal distance from the Atlantic, and some 160 miles south of Jacksonville. I confined my operations to a radius of 12 miles of this place.

Lake county, a small section of which I explored, is situated in Central Peninsular Florida, right in the heart of the lake region. It seemed strange at first to find in a country where the soil is practically nothing but sand, such a superabundance of lakes. They are everywhere. Five or six can be seen at once from the tops of some of the slight elevations in the high pine land. They vary in size from only a few hundred feet to several miles. There are two groups of them: first, the large ones, which are really widenings of the Ocklawaha River, and second, the small, clear-water lakes. These latter are never very large, and the water contained in them is as clear as crystal. These are particularly numerous in the high pine land. They have no apparent inlet or outlet, and as a rule occur in deep depressions. How it is that the water remains so perfectly clear and limpid is hard to explain. Compared with our northern lakes, they contain little vegetation. *Potamogetons*, *Vallisneria*, and other forms so common in the lakes of the North, are entirely absent, and are to be found only in the Ocklawaha River and the large lakes alluded to above.

Another peculiarity about these clear-water lakes is their variation in elevation. The case of Lakes Alfred and Irma will illustrate this feature. They lie a little to the southeast of Eustis, and are only separated by a steep hillside some 500 or 600 feet long, Lake Imra being at the top of the hill. The difference in elevation is about 65 feet. One or two small streams, rising in this hillside, flow into Lake Alfred. But in spite of this its waters gradually lowered during the entire summer, and when I left in September the lake was nearly dry. The waters of Lake Irma, on the contrary, remained at the same level, although it is considerably higher and would be expected to drain into Lake Alfred.

As stated before, the flora of this section is very rich, and this fact is due to the exceeding variation in the physical features of the surrounding country. There are five well-marked areas, the flora of each one being different, and having certain plants peculiar to itself. These might be designated as: High Pine Land, "Scrub," Low Pine Land, "Bayheads" and "Hammocks."

Of these the high pine land is the greatest in extent. The tall timber is composed entirely of the long-leaved or yellow pine, *Pinus palustris*. The trees have perfectly straight trunks, rising to a height of 50 to 75 feet, the branches all being borne near the top, leaving the trunks entirely naked. The two other prevailing trees are *Quercus Catesbaei* and *Q. cinerea*, the shining bright green deeply cut leaves of the former making a strong contrast to the narrow entire and grayish-green foliage of *Q. cinerea.* The

Leguminosae are well represented, and in fact the members of this family predominate among the herbaceous plants. *Chapmania Floridana*, *Aeschynomene hispidula*, *Morongia angustata*, *Rhynchosia cinerea*, *Crotalaria Purshii*, *Cracca ambigua* and *C. chrysophylla* are the ones met with everywhere. Among the more frequent of the Compositae are *Berlandiera subacaulis*, *Pterocaulon undulatum*, *Cnicus spinosissimus Elliottii*, *Lygodesmia aphylla*, *Vernonia angustifolia*, *Hieracium megacephalon*, *Helianthella grandiflora* and *Liatris secunda*. Among other plants characteristic of this region are: *Tradescantia rosea*, *Asclepias amplexicaulis*, *Asimina pygmaea*, *Commelina angustifolia*, *Polanisia tenuifolia*, *Breweria angustifolia*, *Stillingia sylvatica*, *Croton argyranthemus*, *Jatropha stimulosa*, *Eriogonum longifolium* and *E. tomentosum*, *Portulaca pilosa*, *Ceanothus microphyllus* and *Piriqueta Caroliniana*. The grasses are represented by few species, but these occur in great numbers. *Aristida stricta*, *Sporobolus juncea*, *Andropogon argyraeus* and *A. longiberbis* are the commonest. There is only one member of the Cyperaceae that occurs in any quantity and that is *Stenophyllus Warei*.

The high pine land is subject to annual fires. The cattle growers burn off the old grass, so that the roots will start up and give a crop of young, succulent shoots. It is wonderful what a variety of features protect the plants against these destructive fires. *Pinus palustris* has a very thick bark at the base of the trunk, and the thickening is very noticeable in the shape of a sudden swelling just above the ground. All the herbaceous plants have large underground parts, tubers or thick roots, which store up nutriment and protect them. *Commelina angustifolia* has an immense fascicle of fleshy horizontally spreading roots, which anchor the plant deep in the ground and keep its soft, tender parts out of harm's way. *Tradescantia rosea* has a similar arrangement. The provision for the preservation of *Helianthella grandiflora* from extinction is even more noticeable. Buried in the ground, 6 or 8 inches deep, is an oblong tuber; the stem arising from this, instead of pushing abruptly upwards, continues horizontally, sometimes for a distance of 12 or 18 inches, and then rises obliquely to the surface; no matter how much the fire may damage the aerial portions, the plant has a supply of nutriment, enough to enable it to start up again at once. The above are only a few instances of the many means which insure the preservation of the different species.

The "scrub" flora is entirely different from that of the high pine land, hardly a single plant being common to both; in fact these two floras are natural enemies and appear to be constantly fighting each other. The only large tree growing in this region is *Pinus clausa*, which is markedly different from *P. palustris*, the pine of the high pine land. The latter is a tall, straight tree, with the branches restricted entirely to the top. *P. clausa*, on the contrary, is branched almost from the very base and does not attain a height of over 30 feet. Its needles are very fine, and it has received the name of the "spruce pine." The great part of the growth in the "scrub" is made up of scrub oaks, which are so variable that no two of them seem to be alike, and how many species there may be would be hard to tell. Only a number of years of close study in the field could determine this. *Ceratiola*, with its heath-like leaves, occurs here very abundantly. *Persea humilis*, a most beautiful little shrub, makes itself very conspicuous by its bright brown silky pubescence, which is noticeable a long way off. *Bumelia lanuginosa* is very common, as is *Ximenia Americana*. *Smilax Beyrichii* climbs all over the scrub oaks, and is the only one of this genus observed growing in the "scrub." One of the most beautiful plants of this part of Florida is *Breweria grandiflora*, with its large, bright blue flowers. The stems, with their peculiar gray-green erect leaves, spread out in all directions over the white sand. I remember one place, several acres in extent, where this plant reached its perfection, the stems sometimes eight or nine feet long, fairly covering the ground in all directions, with hundreds of the flowers in sight. It is remarkable that a plant of such luxuriance and beauty can thrive in an area so devoid of moisture as the "scrub," and yet it selects and confines itself exclusively to this region. Only one species of Cyperaceae is to be found here. This is *Rynchospora dodecandra*, and is quite common. Grasses there are absolutely none. For some reason this family is unable to obtain a foothold. Occasionally some member of the Andropogoneae tries it, but soon dies, not being able to stand the opposition it meets with for more than a few months.

I spoke above of the antagonism of these two floras. This is so marked that there is no mistaking it. Wherever they come together the line of division is very distinct. A bare space of pure white sand usually separates the two. On one side you will see the tall *Pinus palustris* as far as the eye can reach, and on the other the diffusely branched *P. clausa* of much lower stature. You may look in vain in the "scrub" for plants occuring in abundance just over the line in the high pine land, and *vice versa*. The strip of bare white sand dividing the two is neutral ground, and each seems to jealously guard against the other's gaining a foothold there. The soil of these two sections was apparently originally the same pure white sand. That in the high pine land is now darker in color, being probably due to the charcoal deposited there by the annual fires. This seems to be the only difference. As fires are of rare occurrence in the "scrub," the plants have made no provision against it, and so when a fire does go through it causes great havoc, almost entirely killing the pines and oaks. It is fortunate that fires are of such rare occurrence.

The flora of the low pine land region is not so distinct. It grades into that of the high pine land. Each has its separate and peculiar plants, but the line of demarcation is not so evident. *Pinus serotina* and *P. heterophylla* are the prevailing trees. Some of the plants which are peculiar to and characteristic of this region are: *Podostigma pedicellata*, *Trilisa odoratissima*, *Solidago Chapmani*, *Bejaria racemosa*, *Cracca hispidula* and *C. spicata*, *Eryngium yuccaefolium synchaetum*, *Rhexia ciliosa* and *R. serrulata*, *Bletia verecunda*, *Limodorum parviflorum* and *Juncus marginatus pinetorum*. The commonest member of the Cyperaceae is *Fimbristylis puberula*, which occurs in great abundance throughout the low pine land. *Aristida stricta* also occurs here, as well as in the high pine land. *Andropogon Floridanus* is quite common and a very showy member of that genus.

The low pine land occupies an intermediate position between the high pine land and the flatwoods. The latter is not represented near Eustis, and so I did not get a chance to do any collecting among that flora, which differs in a marked degree from that of any other section.

The large swamps, lying generally along the low pine land, have a peculiar flora and one quite interesting. These are locally known as "bayheads," so called, I presume, from the large number of bay trees, *Magnolia Virginiana*, that occur in them. The shrubs most prominent are *Pieris nitida* and *Leucothoë racemosa*. *Gordonia Lasianthus*, with its large white showy flowers, occurs in quantity along the margins. It ranges in height from ten to thirty feet, and when in full bloom is a very pretty sight. The plant most common, and which attracts the eye above all others, is the ever prevailing *Smilax laurifolia*. It climbs and clambers over all the shrubs and bushes, and makes the "bayheads" almost impenetrable. Here and there open places will be found where sphagnum grows in quantity, and in such spots one is almost sure to find *Utricularia fibrosa*, with its large showy yellow flowers. And in the very wet places *Peltandra sagittaefolia* makes itself conspicuous by its showy ivory-white spathes. *Andropogon brachystachys* occurs in the vicinity of "bayheads" and I found it no where else.

The soil of all the above, excepting the "bayheads," is pure sand, overlying a stratum of clay, the depth of sand varying from a few feet in the low pine land to as much as fifty feet in the high pine land. In places the clay comes to the top, and the character of the vegetation entirely changes. This forms what is locally known as "hammock land." It is a heavy clay soil, and is generally subjected to continuous inundation during the rainy season, which lasts from about June to September. *Quercus virens*, the live oak, is the principal tree, and often attains a great height. The most conspicuous object to the eye of a northerner is certainly the Cabbage Palmetto, *Sabal Palmetto*. It rises to a height of 50 to 75 feet, overtopping all the other vegetation. These trees are very plentiful and can be found in all stages of growth, from the young plant only a few feet high to the tall ones just alluded to. Until they attain a considerable size they retain the bases of the petioles of the old leaves. This gives the young palms a different appearance from the one they assume later when they shed these, exposing the slim symmetrical trunk to view. So unlike do they seem that at first sight it is hardly possible to believe that they can be the same in different stages of growth. In some sections the Golden Fern, *Polypodium aureum*, as well as the Old Man's Beard, *Vittaria lineata*, take possession of the trunks of the young palmettos, thrusting their roots down between the sheaths and the trunk. A palmetto thus adorned is certainly a beautiful object.

The blue palmetto, *Sabal Adansonii*, also occurs in the "hammocks." It never attains a height of more than three or four feet. Among the other plants restricted to the hammock lands are: *Tradescantia pilosa*, *Coreopsis Leavenworthii*, *Solidago Leavenworthii*, *Helenium nudiflorum*, *Teucrium Nashii*, *Berchemia scandens*, *Cardiospermum microcarpum*, *Eryngium Baldwinii*, *Ulmus Floridana* and *U. alata*, *Celtis Mississippiensis* and *Capsicum baccatum*.

Owing to this exceeding variation in the physical conditions of the country explored, I was enabled to secure a large number of species, some 800, several of them being new to science and others additions to the flora of the United States. The range of several plants was extended much further south. I also secured a number of rare things hitherto poorly represented in herbaria. The following are some of those of peculiar interest:

1153, 1180. CASTALIA RENIFORMIS (Walt). [*Nymphaea reniformis* Walt.]

This was found growing commonly in Lake Ella. There seem to be two forms of it, one growing along the shore, the other in water 10 to 20 feet deep. The two merged into each other, and a careful comparison showed them to be the same. The rootstocks of the shore form were secured and there was no indication of any tubers. The leaves varied from 6 to 8 inches in diameter in the shore form, to nearly 2 feet in the one growing in deep water. The edges of the latter were distinctly turned up, much as in the *Victoria Amazonica* and occurred in large masses, making it difficult to propel a boat through them. The flowers were long and entirely without odor, with the exception of a faint suggestion of that given off by apples.

815. HELIANTHEMUM NASHI Britton, n. sp.

Diffusely branched from a thick woody, horizontal root, the branches decumbent or ascending, slender, terete, densely stellate-tomentose even when old, leafy, 2–4 dm. long. Leaves oblong or linear-oblong, densely stellate-canescent on both sides, acute at both ends or the lower obtuse at the apex, 1.5–3 cm. long, 3–6 mm. wide, short-petioled, the margins somewhat revolute; flowers all alike in terminal leafy-bracted thyrsi; pedicels 2–5 mm.

long, divergent and ascending; outer sepals subulate; inner sepals oval-oblong, very obtuse, firm, concave, 3–4 mm. long; petals yellow, broadly cuneate, slightly eroded, 5 mm. long; stamens about 15, shorter than the petals; ovary globose, puberulent.

Nearest to *H. arenicola* Chapm., but very different in its thyrsoid, not corymbose, inflorescense, and obtuse inner sepals. It occurs in the "scrub."

14. STIPULICIDA FILIFORMIS n. sp.

A diffusely branched glabrous annual, of very slender habit, 1–2 dm. high. Radical leaves orbicular, acute, about 4 mm. in diameter, on slender petioles 5–7 mm. long; bracts triangular-subulate, about 1 mm. long; inflorescence capitate, 1–2-flowered; flowers about 1.5 mm. long, sessile or slightly stalked; sepals 5, scarious-margined, oval, obtuse, the inner 1.5 mm. long, 1 mm. broad, outer about two-thirds as long; petals 5, oblong, 2 mm. long, .75 mm. broad, entire or somewhat eroded at apex, minutely 3–5-toothed on each side near the base; stamens 3, opposite inner sepals; filaments linear, .75 mm. long, .25 mm. broad; anthers oval, .5 mm. long, .3 mm. wide; capsule globose, obscurely 3-angled; seeds more or less triangular in outline, flattened, less than .5 mm. long.

Differs from *S. setacea* in being much more slender; in the inflorescence, which is composed of fewer and sessile flowers, and in the shorter bracts.

One of the few plants that grow in both the "scrub" and high pine land. It prefers the latter, and attains a much more luxuriant growth there. Begins to flower in March and continues throughout the summer.

755. *Hypericum aspalathoides* Willd.

This has been considered as a variety of *H. fascicularis*. The two occur very commonly around Eustis and are clearly distinct species. The latter is found invariably around the lake shores and grows from 4 to 12 feet high, sometimes forming a small tree with a trunk 2 to 3 inches in diameter. The leaves are long and it flowers about the middle of April, maturing its fruit early in August. *H. aspalathoides* never occurs along the lake shores, but in the low pine land. It is a small undershrub, 1 to 3 feet high, has much shorter leaves, does not flower until five or six weeks later, and matures its fruit sometime in September.

673. *Hibiscus incanus* Wendl.

This has been put in with *H. Moscheutos* but it certainly appears distinct from that plant. Its flowers are always pure white with a deep purple centre. The leaves are softly pubescent on both sides, and are very seldom lobed at the apex, and when they are the lobing it is very slight.

378. *Cardiospermun microcarpum* Kunth.

Of frequent occurrence in the " hammock lands," climbing up the bushes and small shrubs. It appears to be new to the flora of the United States. It occurs in the West Indies, and so its turning up in Florida is not a matter of great surprise. It has much smaller fruit than *C. Halicacabum* L., which is very common in South Florida.

261. *Amorpha virgata* Small.

Mr. Small found this on Stone Mountain, Georgia, and it has now been found in Florida, several hundred miles further south.

1523. KUHNISTERA FEAYI (Chapm.) (*Petalostemon Feayi* Chapm.).

This occurs very commonly in both the "scrub" and high pine land. It forms large clumps 3 to 4 feet across. The flowers are a bright lavender. A white-flowered form was also found (No. 1524).

1336. RHYNCHOSIA CINEREA n. sp.

Perennial. Stems numerous, trailing, branching, 6–10 dm. long, 3-angled, striate, clothed with appressed cinereous pubescence; stipules brown, ovate, acuminate, 3–4 mm. long; leaves from 3–5 cm. long, 3-foliolate, terminal leaflet largest; petiole 11–20 mm. long, rachis 5–9 mm; leaflets appressed-pubescent above and on the veins beneath, somewhat rugose; lateral ones unequally ovate or orbicular-ovate, 13–23 mm. long, 9–18 mm. wide; terminal leaflet larger, orbicular-ovate to depressed-orbicular, 15–26 mm. long, 13–30 mm. wide; petiolules about 1 mm., covered with a dense cinereous, appressed pubescence; flower-clusters about as long as petiole; peduncle 3–5-flowered; pedicels slender, 1–3 cm. long; calyx somewhat 2-lipped; lower lip 3-parted, divisions lanceolate, acuminate, middle one 13 mm. long, a little exceeding the lateral ones; upper lip 2-cleft, teeth acuminate; ovary pubescent; pod oblong, obliquely acute at apex, 16 mm. long, 8 mm. broad, appressed-pubescent, 2-seeded; seed orbicular, flattened, 5 mm. in diameter, mottled brown.

Nearest to *R. tomentosa* Ell., which has a climbing habit, larger leaflets, a yellowish brown spreading pubescence, and the young pod densely pubescent, almost villous. In *R. cinerea* the pod is sparingly appressed-pubescent. Grows only in the high pine land region.

70. *Rubus cuneifolius* Pursh.?

There is some doubt as to this being this species, but more material is needed to decide the matter. It grows strictly erect and is armed with most aggressive spines. The leaves are much larger and the pubescence seems to differ. There is a specimen in the Columbia College Herbarium collected by Mr. A. H. Curtiss, No. 791, which appears to be the same thing.

1142. CRATAEGUS FLAVA INTEGRA n. var.

A small tree 4–5 metres high with spreading branches. Bark light gray, on new shoots reddish-brown; leaves obovate, more or less undulate especially at the apex, glandular on the margin, acuminate at base and narrowed into a slender glandular petiole, 10–13 mm. long. Fruit (not fully ripe) globose, on villous pedicels, 5–15 mm. long.

Collected in vicinity of Lake Ella in old fields, July 2. The fruit was green though apparently full grown. The flowers were not seen.

948. *Drosera capillaris* Poir.

This plant occurs in great abundance along the shores of the clear-water lakes, and seems to be confined to them. It never grows more than 2 or 3 inches high. There is another form which is also quite common, but it is much taller.

1218. RHEXIA FLORIDANA n. sp.

Whole plant of a dark olive green, diffusely branched from a woody base, 2–4 dm. high, branches ascending. Pubescence glandular-hirsute, spreading; leaves linear, 1.5–4 cm. long, 1–3 mm. wide, smooth on both sides, one-nerved, remotely and sharply spinulose-serrulate, acute, sessile, narrowed at base; flowers short-pediceled; calyx-tube cylindric-campanulate, sparingly glandular-hirsute, about 1 cm. long; lobes triangular to ovate-lanceolate, about 2 mm. long, 1 mm. broad at base; petals purple, mucronate, mucro about 1 mm. long; fruiting calyx 13 mm. long, neck 6 mm. long, 3 mm. in diameter, globose portion about 6.5 mm. in diameter; seeds snail-shaped, .6–.75 mm. long, irregularly ridged.

Very distinct and well marked. Its dark color and very narrow leaves readily distinguish it from all the other forms of this genus.

Found growing in quantity in wet clay soil on east bank of canal leading from Hicks' Prairie, near Eustis. Collected early in July.

515. *Œnothera sinuata* L. (?)

The stems of this plant are prostrate and 3 or 4 feet long, with leaves nearly entire or but slightly toothed. It appears quite different from the true plant, which is very common about Eustis.

865. *Melothria pendula* L. (?)

There are two forms of this occurring commonly. One, the ordinary plant, climbs over the bushes and tall weeds, and has thin sharply angled leaves with a broad open sinus at base. The other is always prostrate, and has thicker and more obtusely lobed leaves, with the sinus at base almost closed.

377. *Sambucus Canadensis* L.

This often attains a height of 10 to 15 feet, with a trunk 6 to 8 inches in diameter. Its leaves are very dark green and shining above, with long acumination.

892. *Cephalanthus occidentalis* L.

In the cypress swamps this often reaches a height of 30 feet, with a trunk 5 to 6 inches in diameter. The leaves are also correspondingly large, some of those measured being over 17 inches long.

730. *Richardia Brasiliensis* Gomez.

This appears to be new to the United States. It is evidently introduced, as it occurred only in one place along the railroad track, but it appeared at home and well established.

729, 1346. *Diodia hirsuta* Pursh.

Why this plant should have been put in with *D. Virginiana* is hard to understand. The mistake would certainly not have been made had the two been seen growing. They are entirely different. The latter is a glabrous plant with large thick leaves. *D. hirsuta* is very hairy with much smaller leaves and larger fruit. It occurs in dry sandy soil or in open swamps. In the former situation the stems are prostrate, forming mats on the ground.

In the latter they are only decumbent at base, being erect for the last 10 or 12 inches.

1183. *Garberia fruticosa* A. Gray.

Only a few specimens of this very rare shrub were secured. The plant seemed to be very common, but the flowers were scarce. It probably blooms much later. The shrub is some 4 or 5 feet high.

691. *Solidago Leavenworthii* T. & G.

This rare golden-rod is by no means common. It occurred in only one or two places.

1225. *Helianthella grandiflora* A. Gray.

The tubers of this showy composite exude a copious resinous matter.

1711. *Liatris secunda* Ell.

This is the *L. pauciflora* of the Synoptical Flora where the above name is cited as a synonym. It is clearly not the plant Pursh had in view; he divides the genus into two sections, tuberous and non-tuberous. The first contains the species now placed in *Liatris*, the second is composed of a number of plants, part of which are now put in *Carphephorus*, the others in *Trilisa*. *L. pauciflora* occurs in this latter group. The description given of it is clearly not that of a *Liatris*, as now understood.

390. HIERACIUM MEGACEPHALON n. sp.

Annual, whole plant generally of a purplish hue, stems 3–5 dm. high, channeled, strongly pilose especially at the base. Radical leaves broadly oblanceolate, 8–12 cm. long, 2–3 cm. wide, denticulate, pilose, particularly on the upper surface and the midrib beneath; cauline leaves oblong to oblong-ovate, decreasing in size towards the infloresscense, lower 4–6 cm. long, 1.5–2 cm. broad, truncate at base, sessile; inflorescence corymbose-paniculate, densely glandular-pubescent; involucre 8–10 mm. long; achenes fusiform.

Grows only in the high pine land. Flowers from March–May.

This seems to belong near *H. Gronovii*, and the achene certainly places it near that species. Its inflorescence, large heads, and dense glandular-pubescence clearly separate it from that plant. Moreover, *H. Gronovii* does not begin to flower in

Eustis until late in August, whereas this plant flowers early in the spring.

700. XOLISMA FRUTICOSA (Michx.)

(*Andromeda ferruginea fruticosa* Michx.) This certainly is specifically distinct from *Xolisma ferruginea,* which grows from 6–12 feet high, has light green leaves which are very much rolled in on the margins, and flowers early in March. *X. fruticosa* never attains a height of more than 6 feet, has a much stricter habit, very dark leaves which are not revolute, and does not flower until two months later. This difference is quite marked in herbarium specimens, but in the field there can be no mistaking it.

573. *Vaccinium stamineum* L.?

This occurs in very dry sandy soil, and has much smaller leaves than usual. They are thick, somewhat rugose and of a light green color. The true plant occurs in similar situations, but is much larger and thinner leaved.

941, 1698. *Fraxinus epiptera,* Michx.

In the herbarium of Columbia College there are two things placed under *F. platycarpa.* One of these has fruit over half an inch wide, elliptical in outline, gradually narrowed at each end. The other has linear-oblong fruit. This latter I found in quantity in the cypress swamps and it is evidently distinct from the broad-fruited form. Its leaves are thicker and entire, or occasionally with very obscure serration. It grows from 20–50 feet high and fits very well the description of the *F. epiptera* of Michx., and I have called it that. The broad-fruited one is *F. platycarpa.*

796. *Asclepias Feayi* Chapm.

This was obtained in but one place, in the low pine land. Its pure white flowers, large in proportion to the size of the plant, make it very conspicuous.

419. *Asclepias decumbens* L.

This is very common in the high pine land country. Although it is hard to detect any difference between the flowers of this species and *A. tuberosa,* in the fruit the characters seem to be good. The latter has a pod about 3 inches long and ¾ of an inch wide, while in *A. decumbens* the pod is considerably longer than this and hardly ½ an inch broad. The relative difference between length and breadth is very marked.

1092. ASCLEPIAS ACERATOIDES n. sp.

Perennial. Stems decumbent or erect, dark purple, simple or branched, terete, striate and puberulent; leaves smooth on both sides, those of the stem nearly orbicular or very broadly oblong, about 5 cm. long, 3.5–4 cm. broad, emarginate, rounded at base, on petioles about 8 mm. long; those of the branches oblong, 3–3.5 cm. long, 1–2 cm. broad, apiculate, more or less acute at base, on petioles 2–4 mm. long; umbels borne in the axils of the upper leaves, 20–50-flowered; peduncles puberulent, 2–3 cm. long; pedicels slender, puberulent, about 1.5 cm. long; sepals greenish, lanceolate, reflexed, acute, 2.5 cm. long; petals greenish, oblong-lanceolate, reflexed, obtuse, 6 mm. long, 2 mm. wide; lobes of the crown white with a greenish keel, flattened, semi-lanceolate, 5 mm. long, acute at each end, short-stalked; horn protruding from the middle of the lobe, horizontal, resting on the column, tip more or less ascending; column sessile, 2 mm. high; pod erect or ascending, puberulent, lanceolate, obtusely acuminate, about 8 cm. long, 1.5 cm. wide, on a twisted and reflexed thickened pedicel.

This plant very much resembles an *Acerates*. It grows exclusively in the "scrub," flowering late in June and through July.

1715. *Hydrolea corymbosa* Ell.

Occurs in swamps and is very scarce. I searched for it carefully, but failed to secure more than a few specimens. It grows in the tall grass and might be easily overlooked.

609. *Convolvulus repens* L?

This differs from the ordinary plant in having pure white flowers, the lobes of the leaves decidedly divaricate-spreading, the pubescence stronger, and in a distinct climbing habit. It may be only an extreme form.

770. BREWERIA VILLOSA n. sp.

Whole plant villous-pubescent. Stems several from a perennial root, simple or much branched, trailing; leaves oblong to oblong-ovate, 2.5–7 cm. long, 7–20 mm. broad, obtuse, apiculate, rounded at base, on petioles 2–8 mm. long; peduncles equalling or exceeding the leaves, 1–7-flowered; bracts shorter than the pedicels; sepals oblong to ovate-lanceolate, 8–11 mm. long, 3–4 mm. broad, acuminate, villous; corolla 1.5–2 cm. long, white; filaments filiform-subulate, two-thirds as long as corolla, adnate and villous for two-fifths their length, lower part of free portion pubescent; anthers 1.5 mm. long; ovary villous, 2-celled, cells 2-ovuled; styles 2, adhering for one-third their length; capsules on erect pedicels, ovate, villous at apex, 2-celled, cells 1-seeded; seeds yellowish brown, ovate, compressed, flat on one side, 5 mm. long, 3 mm. broad.

Found in low lying oak land in the vicinity of water. Nearest to *B. aquatica* but readily distinguished by its larger white corolla, villous filaments and adhering styles.

Nos. 771 and 1508 appear to be the same. They have larger and thinner leaves and are not so villous. They grew in more shaded situations, and this probably accounts for the variation in the leaves and pubescence. In No. 770 the peduncles almost invariably exceed the leaves and are many flowered. In Nos. 771 and 1508 the leaves and peduncles are nearly equal, and the latter often only 1-flowered.

971, BREWERIA ANGUSTIFOLIA n. sp.

Stems numerous, from a perennial root, trailing, slender, 8–10 dm. long, more or less depressed-pubescent. Leaves narrowly linear, 2.5–7 cm. long, 1.5–3.5 mm. broad, glabrous or pubescent, acute, sessile or on petioles not exceeding 2 mm. in length; peduncles slender, 1-flowered, about equaling the leaves, appressed-pubescent; bracts shorter than the pedicels; sepals elliptical to oblong, acute, smooth, ciliate, 7–10 mm. long, 2.5–3 mm. broad; corolla white, about 2 cm. long; filaments villous with jointed hairs, about one-half as long as coralla, adnate for one-third their length; styles 2, three-fourths as long as coralla, adnate for one-third their length; ovary villous at apex; capsules 8 mm. long, on recurved pedicels, oval, acute, with a tuft of hairs at the apex, 2-celled, cells 1-seeded.

Grows only in the high pine land region, where it is very abundant. It has been confused with *B. humistrata* and *B. Pickeringii*, from both of which it is evidently distinct. It differs from the former in its larger flowers, very narrow leaves, invariably 1-flowered peduncles, and 2-seeded capsule. From the latter it can be separated by its much shorter bracts, villous filaments, styles adnate for a much shorter distance, and like the stamens, included.

1299. *Utricularia resupinata* B. D. Greene.

Occurs very plentifully along the shores of several of the clear-water lakes. A few specimens of it were secured by Dr.

Garber and Dr. Porter was the first to note the extension of its range into Florida. It seems to have been reported from no intermediate stations.

248. *Utricularia oligosperma* St. Hil.

This is the largest of its genus occurring in Florida. It is found in both the rivers and lakes, and is quite common. It reaches its perfection in Lake Ella, where the stems often attain a length of 6 to 8 feet and the branches spread 2 to 3 feet. The growing end is of a beautiful pink color, the middle portion a dark green, and the decaying end a rich brown. It is entirely floating, forming a beautiful object spread out in the water, and looks like a large sea-weed. Its flowers are an inch in diameter and yellow. It is found in South America, and the extension of the range to central Florida, where it is evidently indigenous, is remarkable. On a specimen of a *Utricularia* in the Columbia College Herbarium, collected by Dr. Chapman, is a note to the effect that the plant appeared in the bay at Apalachicola in 1842, but entirely disappeared in a short time. This specimen proves to be this same thing.

974. *Boerhaavia decumbens* Vahl.

This plant was very plentiful, much more common than the other species growing with it, *B. erecta.* It always occurred in cultivated ground or its vicinity and may be introduced. I cannot find that it has been reported from the United States before.

1185. *Paronychia herniariodes* (Michx.) Nutt.

This rare plant was found growing quite freely in one locality near Tavares. It occurred in dry sandy soil just west of the railroad bridge crossing the Ocklawaha River. It had been previously known only from Georgia and North Carolina.

435. *Persea pubescens* (Pursh) Sargent.

Dr. Chapman published this as a variety of *P. Carolinensis.* It has several well-marked characters which seem sufficient to justify its elevation to specific rank. In *P. Borbonia* (L.) Spreng. (*P. Carolinensis* Nees) the leaves and inflorescence are glabrous, the peduncles equaling or shorter than the petioles, and fruit fully a half inch in diameter. In *P. pubescens* the leaves and inflorescence are strongly pubescent, the peduncles generally much exceed the petioles, and the fruit is but little more than half as large, of a light blue color.

574. PERSEA HUMILIS n. sp.

A compact shrub, 2–3 metres high, with branchlets, young leaves, and whole inflorescence covered with a dense bright brown sericeous pubescence. Branches dark slate-color; leaves from elliptical to oblong, 4.5–8.5 cm. long, 2–3 cm. wide, more or less revolute on the margins, acuminate at both ends, obtuse at apex, yellowish green, smooth and slightly shining above, blackish and pubescent beneath, the midrib very prominent; petioles from 1–2 cm. long; inflorescence capitate; peduncles stout, 4–7 mm. long, generally 3-flowered; flowers about 6 mm. long; sepals erect, obtuse, outer ones oval, 2 mm. long, shorter than the stamens, inner oblong, 5 mm. long, exceeding the stamens; fruit purplish black with a bloom, globose, 15 mm. in diameter, on peduncles about 15 mm. long; seed globose, 11 mm. in diameter.

This seems to be nearest to *P. Borbonia* (L.) Spreng. It differs in its smaller size, shorter, stouter and fewer-flowered peduncles which elongate in fruit; and especially in the dense brown sericeous pubescence of the young leaves and branchlets. This latter feature makes the shrub very conspicuous, and seems to be unusual in the genus. This, moreover, flowers some five weeks later than *P. Borbonia.*

Occurs exclusively in the "scrub," where it is very common. Collected at Eustis in flower in May. Fruit kindly collected on November 8th at the same place and sent to me by Mr. W. T. Swingle.

1397a. CROTONOPSIS SPINOSA n. sp.

An erect much branched annual, 4–7 dm. high, clothed with stellate-pubescence. Branches erect; leaves linear to linear-oblong, 1.5–3 cm. long, 2–5 mm. broad, acute at both ends, on petioles 1–2 mm. long; fruit spiny; seeds ovoid to ellipsoid, only slightly flattened, 2 mm. long, 1.5 mm. broad, minutely pitted.

Differs from *C. linearis* in having a more strict habit, smaller and much less flattened seeds, narrower leaves, and fruit covered with spines.

Collected by Mr. W. T. Swingle at Dunellon, July 24.

1700. *Habenaria blephariglottis* (Willd.) Torr.

Evidently an abnormal form of this plant. Its parts are nearly twice as large as usual. Some of the flowers are slightly tinged with orange.

6. LIMODORUM PARVIFLORUM (Lindl.) (*Calopogon parviflorus* Lindl.)

Quite common in the low pine land. It grows from 6 to 12 inches high. Its flowers are deep purple, much resembling those of *L. tuberosum* of the north, which is also common, but flowers much later. *L. parviflorum* was in full bloom early in March.

557. STENORRHYNCHUS JALISCANA (Watson.) (*Spiranthes Jaliscana* Watson.)

Finding this plant in Florida was a surprise. It was previously known only from Mexico.

857, 1703. *Tillandsia juncea* Le Conte.

This has been placed with *T. setacea* Sw. by Mr. Baker, in his monograph of the Bromeliaceae. The two are very common where I collected and are clearly distinct. *T. setacea* has erect setaceous leaves, very narrow at the base while in *T. juncea* the leaves are much stouter, with a much broader base, and are conspicuously recurved. The specimens in the Columbia College herbarium collected by Dr. Chapman and so named are evidently another species, the *T. Balbisiana* R. & S. Le Conte says [Ann. Lyc. N. Y. **2**: 131 (1828)] that his species very much resembles the figure of *Bonapartea juncea* in Flora Peruviana, *pl. 262.* The plant referred to above certainly does bear a strong resemblance to this figure.

1562. *Yucca filamentosa* L. var.

There are two forms of *Y. filamentosa* occurring in this region One flowers in May, has conspicuously twisted leaves which generally are strongly recurved and rather short, and matures its fruit in July. The other is taller, has whiter flowers in a larger panicle, longer and more erect leaves which are narrower in proportion, and does not flower until August. They grow in similar situations. With these differences it hardly seems possible that they can be the same.

459. NOLINA BRITTONIANA n. sp.

Roots a cluster of long spreading fleshy fibres. Radical leaves 40–70, recurved and prostrate, forming a dense mass around the base of the plant, linear, 1–2 metres long, 5–10 mm. wide, strongly scabrous on the margins, attentuated into a long slender point; cauline leaves setaceous, 1–3 dm. long, about 1 cm. broad at base; stem arising from a bulbous base, 1–2 metres high; inflorescence paniculate, ovoid to oblong in outline, 3–4 dm. long; flowers in clusters of 2 or 3 on erect pedicels 3–5 mm. long; perianth segments elliptical to elliptical-ovate, 4 mm. long, 2 mm. wide, glandular at apex; filaments flat, broadly subulate, 2 mm. long, .5 mm. broad; anthers 1.5 mm. long; cells oblong, .75 mm. broad; ovary 3-celled, orbicular-ovoid, truncate, somewhat triquetrous; stigmas sessile; capsule orbicular, on slender recurved pedicels about 1 cm. in length; 8–9 mm. long, 10 mm. broad, cordate, retuse, triquetrous, 2 of the cells 1-seeded, the other generally empty.

Grows in dry, sandy soil in the high pine land region. Sometimes five or six plants occur together, and then it makes a very showy appearance in flower.

This plant is named in honor of Dr. N. L. Britton who has given me much help and advice in working up my collections, and to whom I wish to extend my thanks for his many kindnesses.

1389. *Xyris platylepis* Chapm.

This is found in the low pine land region and occurs with either white or yellow flowers (No. 1377.), the former by far the more frequent.

954. *Xyris torta* Sm.

This is the commonest species, inhabiting the low pine land. It invariably has white flowers, a fact which does not seem to have been noted before.

1584. XYRIS SMALLIANA n. sp.

Plant smooth, glabrous and shining throughout. Leaves about one-half as long as scape, linear, 3.5–6 dm. long, 3–9 mm. wide, striate, the lower half purple; sheath from 2.5–4 dm. long, striate, with a blade from 1–10 cm. long; scape erect, scarcely striate, 7–10 dm. tall, nearly terete, 1-edged throughout, flattened and 2-edged just below the head, one edge being much more prominent; heads ellipsoidal, about 2 cm. long, 1 cm. in diameter when mature, ovoid in the early flowering state; scales orbicular-obovate, entire, 5–6 mm. long, 3–5 mm. wide; lateral sepals conspicuously exserted, 8 mm. long, 1 mm. wide, curved, wing gradually broadening to the top where it is from one-half to two-thirds as wide as the sepal, lacerate-fimbriate for the upper third; petals yellow; capsule obovoid, obscurely triquetrous, placentae parietal; seeds from cylindric-oblong to cylindric-obovoid, more or less curved, pointed at both ends, striate, about .6 mm. long, .2 mm. wide.

Growing in shallow water at Lake Ella and in very wet soil along edge of cypress swamp north of Trout Lake, near Eustis. No. 539. *X. torta* and *X. fimbriata* are the only other species in the United States with exserted sepals, the former with white petals.

1525. COMMELINA SWINGLEANA n. sp.

Stems 1–3 dm. high, smooth, sparingly branched, prostrate or ascending, from a compact fascicle of descending fleshy roots 3–5 cm. long; sheaths inflated, 6–9 mm. long; leaves linear to linear-lanceolate, 4–6 cm. long, 5–7 mm. wide, glabrous or slightly pubescent; peduncles about 5 mm. long, pubescent; spathe more or less pubescent, 2 cm. long, 1 cm. broad, falcate-acuminate, rounded posteriorly; the two large petals deep blue, reniform, 12 mm. long, 17 mm. broad, claw 3–4 mm. long; capsule depressed-globose, 5 mm. long. 4 mm. broad, obscurely 3-lobed, 3-celled, cells 1-seeded; seed broadly oval in outline, somewhat compressed, flat on one side, smooth, dark-brown.

The stems of this plant are generally prostrate, about 1 dm. long; occasionally one is found with longer and ascending stems, but they are very rare. Collected in the high pine land region at Umatilla early in August.

There are two specimens in the Columbia College herbarium which evidently belong here, one collected by Dr. Chapman, and the other by Mr. Blodgett at Key West.

Near to *C. hamipila* Sauvalle, of the West Indies. That is diffusely branched; has a smaller seed, gray in color, narrower and longer leaves, longer sheaths, not inflated, and an ovoid capsule.

Named in honor of Mr. W. T. Swingle, Director of the Sub-Tropical Laboratory at Eustis, to whom I wish to extend my thanks for the many favors shown me. His knowledge of the country and flora, which were freely imparted, enabled me to make much more valuable and extensive collections than would have otherwise been possible.

1015. *Peltandra sagittaefolia* (Michx.) Morong.

Occurs in the bayheads, generally among sphagnum. It is by no means common.

148. *Lachnocaulon Beyrichianum* Sporleder.

This is another rare plant, but very common around Eustis, along the shores of the clear water lakes. It grows in small tufts, generally among tall grass.

1295. *Lachnocaulon Beyrichianum* Sporleder?

Appears to be the same as No. 148, but the heads are much larger than the original description calls for.

1407. *Cyperus leucolepis* Carey.

This rare plant was previously only known from a single collection. I found it growing quite freely in one place at Eustis. Its silvery white scales make it very conspicuous among the tall grass.

STENOPHYLLUS FLORIDANUS Britton, n. sp.

Similar to *S. capillaris*, culms filiform, erect, 10 cm. to 20 cm. tall, much exceeding the thread-like leaves. Sheaths ciliate; spikelets linear, acute, several-flowered, rich brown, 4 mm. to 8 mm. long, 1 mm. wide, sessile and densely capitate in 4s to 10s at the summit; scales ovate-lanceolate, keeled, about 1 mm. long, with a minute slightly spreading tip; achene obovoid, 3-angled, light-colored, slightly longer than thick, the angles rounded, the faces somewhat concave, the whole surface cellular-reticulated, its cells oblong; style glabrous, 3-cleft for about one-fourth its length.

Dry sandy soil, high pine land.

566. *Setaria flava* Kunth.

This appears to be new to the United States.

1382. *Setaria Ventenatii* Kunth.

Also an addition to the flora of the United States.

831. *Marsilia vestita* H. & G.

This was found growing in abundance at Orange Bend, the same place from which Prof. Underwood reported it. The plant occurs along the track on both sides of the depot for about one-quarter of a mile. It is confined to that limited area so far as I could find out. Its occurrence at such a distance from its ordinary range and its limitation to this small section point very strongly to its being introduced.